

Work Order ID 61771

Thursday, September 02, 2010 1:13:22 PM



Page 1

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 9/2/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: PL Date: 10-9-02 Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D350-748-241	Rev E

100 0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-201.

CHG001

8/22/10
002 per SCNU-504
if new mat'll used

8/22/10 BG 11-7-18

110 0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT _____

11-6-25

120 0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

CP 11.06.27

W/O: 61771		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11.07.12	161	- Deflect tube to 3000lbs for 1 minute - Remeasure height and width	PD	11.07.12	1	11.07.13 DS1042	11.07.12
11.07.12	162	- NDT tube	EC	11/7/15	1	11.07.13 DS1042	11.07.12

Part No: D350-748-201 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

125

0.00



HandFXtube

Memo

0.00

Stress relief

Heat treat crosstube as per QSI010 4.3

temp 376

start time 3441

Finish time 9441

SAD 11-06-28

127

0.00



QC

Memo

QC5- Inspect part completeness to step on W/O

8 u/06/29

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00



Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs,
Set-up drill table as per QSI 010

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-241

4-Remove all marks from tube within limits of D350-748-241

5- Apply a light coat of LPS3 on the interior of tube

Batch: W109456

140

0.00



QC

QC6- Inspect dimensions to drawing

Memo

0.00

Quality Control

Pro →

J Wlodek

Q

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D320-746-101 PAR #: _____ Fault Category: Landing Gear NCR: (Yes) No DQA: (X) Date: 11/07/19
11/13/20 Resolution: As is Disposition: As is QA: N/C Closed: (X) Date: 11-07-20

NCR: <u>61771</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
<u>11/06/20</u>	<u>#130</u>	<u>nut was drilled before stress relief was done. R.C. new process and wasn't recognized in w/o LOA</u>	<u>P</u> <u>11.07.19</u> <u>DS/ON</u>	<u>have stress relief performed after drilling</u> <u>acceptable this one time only</u>	<u>(Signature)</u> <u>11-7-19</u> <u>11/07/19</u>		<u>P</u> <u>11.07.19</u> <u>DS/ON</u>	<u>S</u> <u>11/06/20</u>

NOTE: Date & initial all entries

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Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

Outsource process-Cadplate per QSI017 4.1.9.1

0.00



Outsource3

Memo

0.00

Issue P/O: 14394

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

CY 11/06/30 ①

160

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Ensure certificate of conformity is attached

C4/2/1 ①

P. 161/162/163

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

M 11 01 15 ①

Pro

W/O: 61771		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11-7-15	162	NDT - P/O: 14488 acumen / red. cycle test 18714.	CX	11/07/15	①	N/A	S. W. H. S.

Part No: D350-748-201 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180		0.00							
	SprayPaint								
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 2-Paint Outside of Tube as per Dart QSI 005 4.2								
190		0.00							
	QC14- Inspect Spray Paint								
QC	Memo	0.00							
Quality Control	Then, Wrap in plastic bag to protect from scratches								
200		0.00							
	Crosstubes								
Crosstubes	Memo	0.00							
Crosstubes	1-Install Ground wire Insert, then insert screw and washer 2-Install Abraison strips as per Dwg D350-748-241 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS								

11 07 14 (1)

BT 11-07-15

BT 11-07-18

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Required Date: 9/20/2010 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

11 07 19 ①

220

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

11/17/19

230

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

Sulzer

⑦

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Cust Item ID:

Required Date: 9/20/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

0.00



Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD350-748-201

Location: BPPP Rev: B

n/7/19

250

0.00



QC21- Final Inspection - Work Order Release

QC

Memo

0.00

Quality Control

n/7/19

11-07-19
(1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

Thursday, September 02, 2010 1:13:27 PM

Page 1

Work Order ID: 61771

Parent Item: D350-748-201

Parent Item Name: Crosstube Installation, High Aft

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev: A New Issue 06-07-05 JLM
 IPP Rev: B Update qty of MS21042L5 06-09-12 KJ
 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC
 IPP Rev: E 08.12.11 Step17 was step 21 KJ Verified by:EC IPP Rev:F
 10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-241TRN		Manufactured	No			110	Each	3.0000	1	1			
Crosstube Turning Detail													

Location	Loc Qty	Loc Code
LG	3	64476
59549	1	
59551	1	
59587	1	

①

SAD 11-06-25

ALS4-1032-225	Purchased	No				200	Each	5,336.000	1	1			
Insert													

Location	Loc Qty	Loc Code
PK011	5336	
110768	5336	

X1

ST 11-07-18

AN960JD10	NAS1149D0363J Purchased	No				200	Each	6.0000	1	1			
Washer													

Location	Loc Qty	Loc Code
ST	6	
107715	6	

ST 11-07-18

117291

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Page 2

Work Order ID: 61771

Parent Item: D350-748-201

Parent Item Name: Crosstube Installation, High Aft

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

D2856-400

Manufactured No

200 f

313.4060 1.181 1.243158



Abraison Strip

68076



25 11-07-18

Location

Loc Qty

Loc Code

ST403

313.4060421

56626

97.4060421

59920

216

1- cut as per dwg D2856

D3502-1

Manufactured No

200 Each

54.0000 2 2



Support

61843



25 11-07-18

Location

Loc Qty

Loc Code

ST063

12

61206

12

ST066

42

50287

38

52903

4

MS21920-20

Purchased No

200 Each

77.0000 2 2



Clamp (per MIL-DTL-8783C)

117279



25 11-07-18

Location

Loc Qty

Loc Code

LG

77

112624

6

114687

21

114779

24

115057

26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Work Order ID: 61771

Parent Item: D350-748-201

Parent Item Name: Crosstube Installation, High Aft

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-10

Purchased

No

200

Each

126.0000

1

1



Screw

115935



RT 11-07-18

Location

Loc Qty

Loc Code

ST291

126

112794

26

112940

100

Purchased

No

220

Each

274.0000

8

8

AN4-41A



Bolt



HAH S

Location

Loc Qty

Loc Code

ST337

40

ST360

234

111424

4

113359

30

114941

100

115108

100

Purchased

No

220

Each

1,418.000

16

16

AN4-6A



Bolt



M116924 S 11/7/19

Location

Loc Qty

Loc Code

ST356

1418

112933

96

113149

19

114523

2

114615

1

114941

500

115108

300

115457

500

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Parent Item: D350-748-201

Parent Item Name: Crosstube Installation, High Aft

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

AN5-32A

Purchased

No

220

Each

196.0000

4

4 3Y

1x



Bolt



M117161 M117688 5

Location

Loc Qty

Loc Code

ST340

196

113121

4

114056

42

114405

50

115016

50

115108

50

AN960JD416

NAS1149D0463J

Purchased

No

220

Each

0.0000

32

32



Washer



M117591 5

AN960JD516

NAS1149D0563J

Purchased

No

220

Each

34.0000

8

8



Washer



M118206 3

Location

Loc Qty

Loc Code

ST

34

103694

18

107534

12

109287

4

D3500-1

Manufactured

No

220

Each

30.0000

4

4



Saddle



B61838 11/7/11 8

Location

Loc Qty

Loc Code

ST424

30

55605

2

59422

16

60489

12

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Shop Packet Print

Page 4

W/O:		WORK ORDER CHANGES					
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Parent Item Name: Crosstube Installation, High Aft

Start Date: 9/2/2010

Required Date: 9/20/2010

Start Qty: 1.00

Required Qty: 1.00

D3501-1

Manufactured No

220 Each

394.0000

16

16



Bushing



B61984

Location

Loc Qty

Loc Code

ST066

394

45402

15

45918

112

48268

67

53779

100

61196

100

MS21042L4

Purchased No

220 Each

2,363.000

24

24



Nut



M117441

Location

Loc Qty

Loc Code

ST300

2363

113422

68

114523

28

114718

16

114784

331

115108

1920

MS21042L5

Purchased No

220 Each

633.0000

4

4



Nut



M116548 11/7/198

Location

Loc Qty

Loc Code

ST139

133

114813

133

ST300

500

115156

500

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Shop Packet Print

Page 5

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

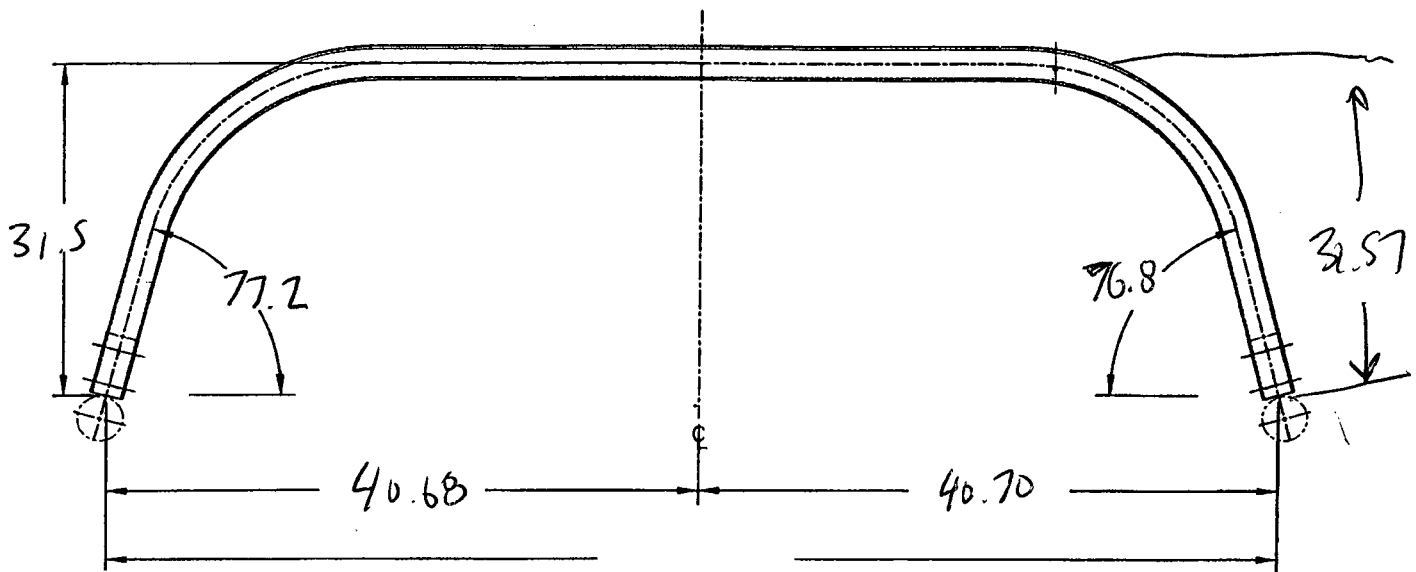
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	41771
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: E			Page 1 of 1

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments
tube bent high & narrow ~ Acceptable
CP 11.06.27
QSI 072

QC15 Inspection	CP
Date	11.06.27

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

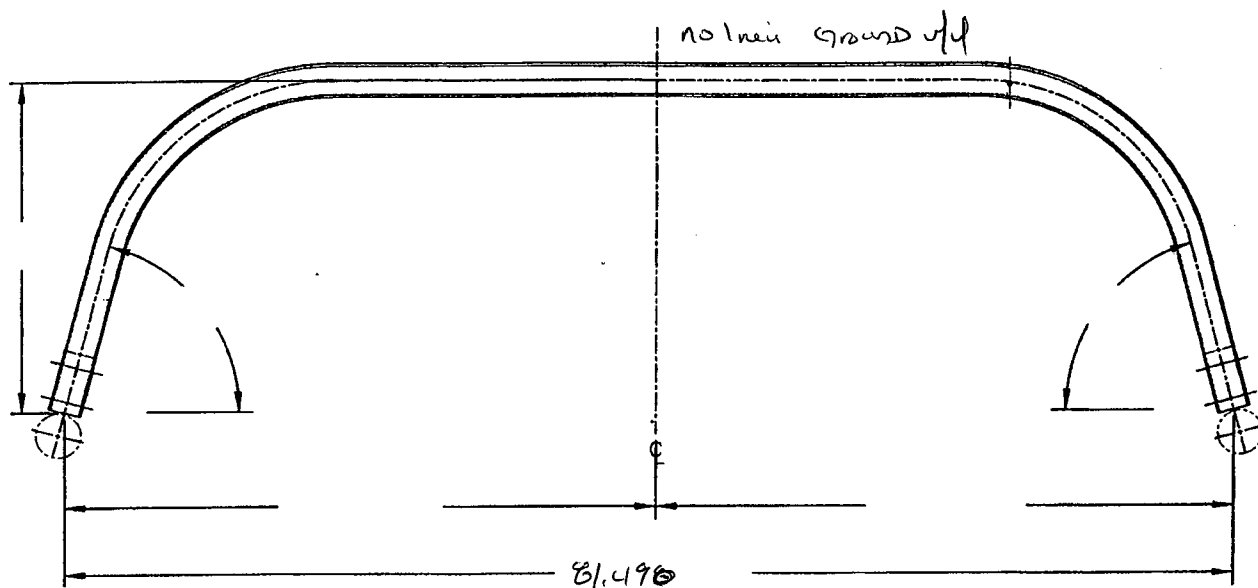
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order: 61771	
Description: Crosstube High Aft (AS350/355)	Part Number: D350-748-201	
Inspection Dwg: D350-748-241, Rev: E		Page 1 of 1

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments
AFTER stress Relief.
twist = 0.429 0.501 CP DS1612 11.06.29

QC15 Inspection	8
Date	11/06/29

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

Item	Qty -241	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6018-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6018-125
FINISHED LENGTH = 122.700±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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WITHOUT NOTICE
WORK ORDER
NO. 61771

2810-9-02

RELEASED
2009-10-29

E	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D350-748-241	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

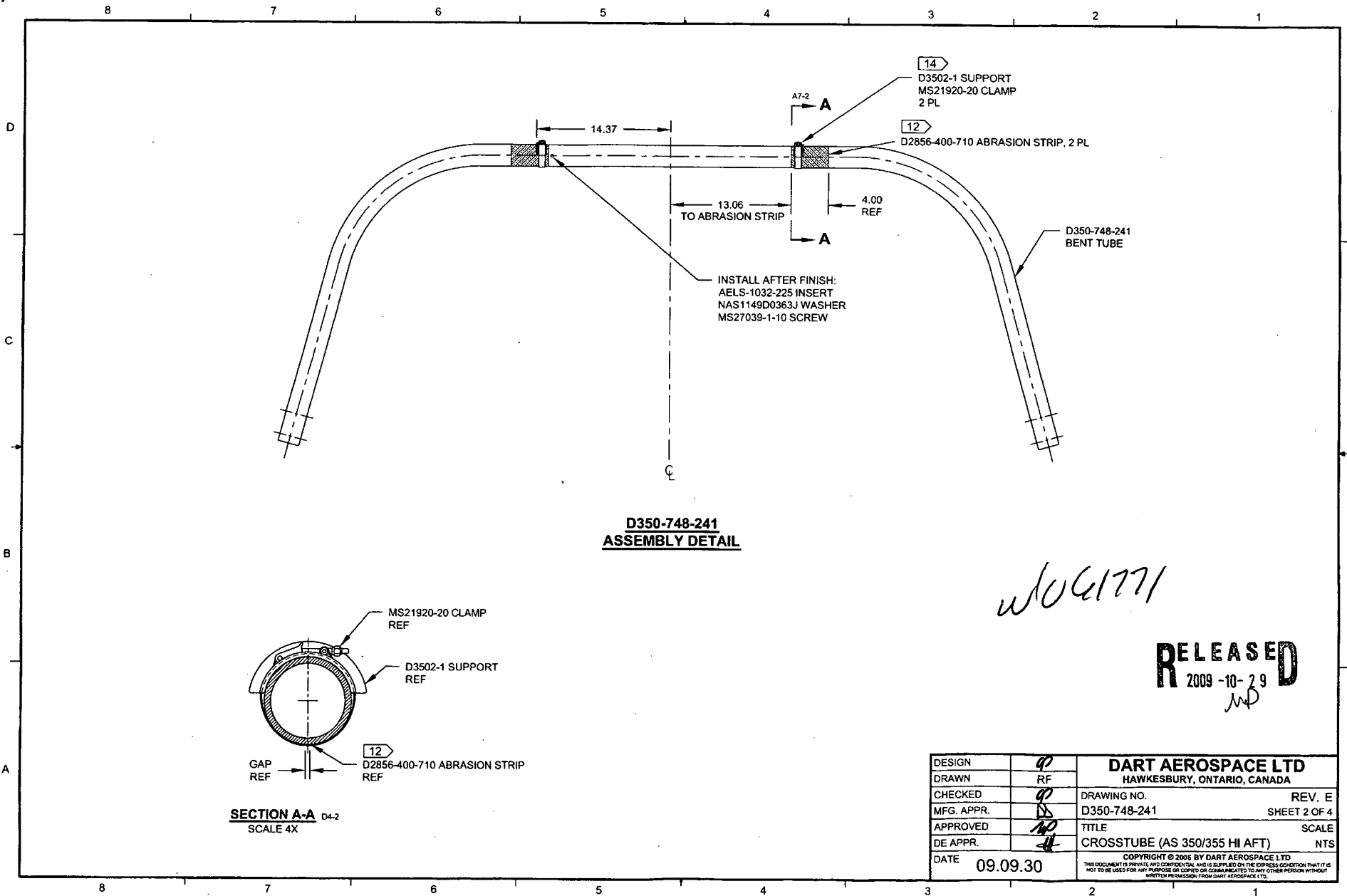
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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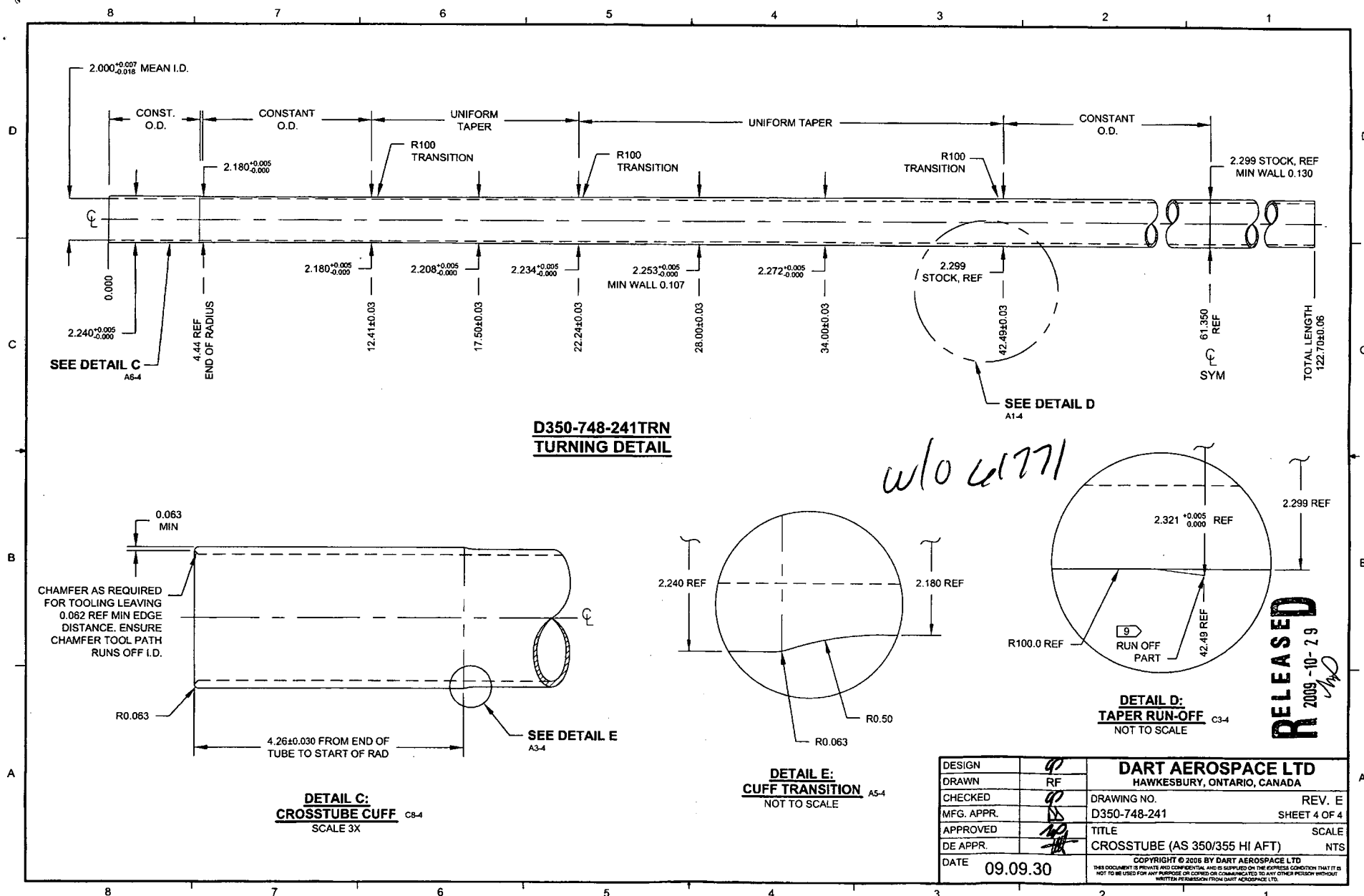
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes / No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

REFERENCE ONLY**5.0 PARTS LIST**

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

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Revision: **B**
Date: 07.06.15

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Jul-07-2011

CONSIGNEE TO: Dart Aerospace Ltd.
1270 Aberdeen St.
Hawksbury, ON K6A 1K7

W/O #: 105862
INVOICE #: 55672

**CONTRACT OR
PURCHASE ORDER #** PO14394

DESCRIPTION: SKID **QTY** 1

P/N # D350-748-201

S/N # b61771

STRESS RELIEF @ 375 DEG. FOR 5 HRS. BAKE HEAT CHART #11-698. MPI INSPECTED IAW ASTM-E-1444. CADMIUM PLATED IAW AMS-QQ-P-416C, TYPE 2 YELLOW, CLASS 2. BAKE HEAT CHART #11-707.

CERTIFICATE: I certify that the items indicated here on have been inspected and tested and conform to all specifications and requirements detailed on the contract or purchase order.

Approved Inspector:





P- 12378

PAGE 7 DE 7

CLIENT	Dart Aerospace	DATE	14-7-2011	HEURE	<input checked="" type="checkbox"/> AM <input checked="" type="checkbox"/> PM
ATTENTION	Linda Lacelle	N° TRAVAIL	188-11-02320		
ADRESSE	1270 ABERDEEN	ACUREN			
	Hawkesbury, ONT	N° CLIENT PO/WO	14488		
PROJET	FPI ON CROSS TUBES AND	SITE DE TRAVAIL	Hawkesbury Plant		
ITEM(S) EXAMINÉ	Sleeves	ACCEPTATION STD.	ASTM 1417	DATE/REV.	2005

DESCRIPTION DES TRAVAUX	N° PROCÉDURE	LT-6002	DATE/RÉV.	2008	N° TECHNIQUE	LT-TSK 6002	DATE/RÉV.	2008
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N° ITEMS	MATÉRIEL	ÉPAISSEUR
DESCRIPTION	A wet Fluorescent Liquid penetrant examination was completed 100% external.	

DÉTAILS DES INSPECTIONS

MÉTHODE :	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> LAVABLE À L'EAU	<input type="checkbox"/> MÉTHODE DISSOLVANT	<input type="checkbox"/> PRÉ-ÉMULSIONNANT
MARQUE :	Mogan Fl-x		LUM. NOIRE S/N 1878	<input type="checkbox"/> PUISS. > 1 000 µ W/cm²	<input type="checkbox"/> AMBIANT < 2 fc
PÉNÉTRANT :	2267	TEMPS PÉNÉTRATION MIN. 10 45 MIN.	ÉQUIP. LUMIÈRE	<input type="checkbox"/> LAMP. POCHE	<input checked="" type="checkbox"/> LAMP. CULASSE
DISSOLVANT PÉNÉTRANT :	H ₂ O	TEMPS SÉCHAGE MIN. >10 MIN.	AUTRES		
RÉVÉLATEUR :	SKD 52	TEMPS RÉVÉLATION MIN. 10 MIN.	MÈTRE LUM. N/S 00525	DATE CAL DUE 15 oct 2011	
TYPE RÉVÉLATEUR :	<input checked="" type="checkbox"/> NON AQUEUX	<input type="checkbox"/> AQUEUX	<input type="checkbox"/> SEC		

SURFACE INSPECTÉE

CONDITION SURFACE	<input type="checkbox"/> MEULÉE	<input type="checkbox"/> SOUDÉE	<input checked="" type="checkbox"/> MACHINÉE	<input type="checkbox"/> MRENAILLÉE	<input type="checkbox"/> MÉTAL PROPRE
TEMPÉRATURE SURFACE	<input type="checkbox"/> < - 4°C/20°F	<input type="checkbox"/> - 4°C/20°F À 10° C/50°F	<input checked="" type="checkbox"/> 10°C/50°F À 52°C/125°F		<input type="checkbox"/> > 52°C/125°F

RÉSULTATS ☐ MÉTRIQUE ☐ IMPÉRIALE

ITEM	COMMENTAIRES	ACCEPTÉ	REJETÉ
1	Crosstube - W.O. 70645	✓	
1	crosstube - W.O. 70644	✓	
1	Crosstube - W.O. 69360	✓	
1	Crosstube - W.O. 69361	✓	
8	Sleeve - W.O. 70858	✓	
1	Crosstube - W.O. 69105	✓	
1	Crosstube - W.O. 68521	✓	
1	Crosstube - W.O. (61771)	✓	
1	Crosstube - W.O. 71035	✓	
1	Crosstube - W.O. 71036	✓	

11 07 15

Étendue des Services

L'entente selon laquelle le Groupe Acuren Inc. exécute les services ne concerne que les énoncés par écrit. En aucune circonstance ces services ne s'étendent au-delà de l'exécution des services demandés. Il est entendu que toutes les descriptions, les observations et les expressions d'opinions faites par Acuren reflètent les opinions ou les observations de l'entreprise fondées sur l'information et les hypothèses fournies par le propriétaire/opérateur, et elles ne constituent pas des déclarations ou des garanties ou ne peuvent être interprétées comme constituant. Le Groupe Acuren Inc. n'assume aucune des responsabilités du propriétaire/opérateur, et le propriétaire/opérateur conserve la responsabilité entière des décisions prises en matière d'ingénierie, de fabrication, de réparation et d'usage à partir de l'information ou des données fournies par Acuren en rapport avec les services décrits dans les présentes ne peuvent excéder le coût des services rendus.

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Dans l'exécution des services, le Groupe Acuren Inc. Applique le degré de diligence, le soin et la compétence normalement exercés dans des circonstances semblables par d'autres fournisseurs de ce type de services opérant dans la même localité ou dans une localité similaire. Aucune autre garantie, implicite ou explicite, n'est faite ou voulue par le Groupe Acuren Inc.

SIGNATURES

REPRÉSENTANT	<u>Ian Titley</u>	<u>[Signature]</u>	FTJ#: 003577
TECHNICIEN (SIGNATURE):	<u>[Signature]</u>	<u>[Signature]</u>	RAPPORT
NOM (MOULÉ):	<u>ERIC Rodrigue</u>	<u>[Signature]</u>	RÉVISÉ PAR:
	1 ^{er} TECHNICIEN	2 nd TECHNICIEN	NOM
ONGC NIVEAU <u>II</u> SNT NIVEAU _____	ONGC NIVEAU _____ SNT NIVEAU _____		INITIALES
ONGC N° REGISTRATION <u>102802</u>	ONGC N° REGISTRATION _____		